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AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 2 New York, April 22, 1918 No. 12

Educational Value of the Textile Exhibition

THE forthcoming National Textile Exhibition which is to be held at the Grand Central Palace, New York City, April 29th to May 11th, inclusive, should be of great interest to the layman as well as mill man. It will show the practicability of American machinery and illustrate the keen inventive ability of American chemists.

Each individual booth will be decorated with appropriate posters advising the use of American-made articles and products. Among those exhibiting are manufacturers of machinery, mill supplies, finished goods, government exhibits, dyestuffs and chemicals.

It is natural that the interest of readers of the REPORTER should centre on the exhibits of dyestuffs. We might say here that this is not to be a display of dyestuffs shown only in handsome jars. We certainly had enough of this practice in previous shows. To-day the mill man as well as the layman "has to be shown."

We are indeed glad to see that the larger manufacturers of dyestuffs are planning to demonstrate the actual application of their dyes to different fabrics. This demonstration will perhaps not interest the dyers as much as it will the women who attend.

After all, it is the women of America that control the commercial possibilities of many enterprises.

To-day, as we all know, the average woman looks upon American-made dyes as only substitutes. After the exhibition it is to be hoped that this opinion will change.

Then, when a store salesman (if such we may call him) tells her that American dyes are not as good as German, she can reply with a proper rebuke.

Mention of women brings us to the subject of the Fashion Show. This is to be a real feature indeed. Not the wax figures that one is accustomed to see in the show windows, but on the contrary, very *much* to the contrary, they will be live models. Twenty-five live models wearing the latest creations in gowns and evening wraps. The garments shown will be built from fabrics now placed upon the market by exhibitors.

We mention the Fashion Show in connection with the dyestuff exhibit because they are naturally interlocked. This can be readily seen when we realize that the garments are highly colored and the dyes used were made in America.

Manufacturers of dyestuffs should grasp this opportunity for, unquestionably, this is the physiological moment to interest women.

Every dyestuff manufacturer and dyestuff consumer should seize this opportunity to prove to all that the indus-

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Correspondence invited

A. KLIPSTEIN & COMPANY

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try is established. No better illustration could be furnished than will be shown by the fabrics worn in the Fashion Show. The women of America must be shown by comparison that American-made dyes are equal to the German. Where there is a Fashion Show there also are the women, and dyestuff manufacturers should realize this and act upon it to their advantage.

The publishers of the AMERICAN DYESTUFF REPORTER will have a booth at the Exhibit, and we assure our readers that we intend to do our share in making known to all the accomplishments of the industry.

Our booth will be open to our many friends in the trade and we hope they will take advantage of it.

We also place at the disposal of our readers the suite of offices of the Hewitt Publishing Corporation.

As publishers of the REPORTER we are in a position to give an unbiased opinion upon important subjects, and this information is at your command.

We hope to have the pleasure of meeting face to face those of you that we have come to know through correspondence and we look forward to this with eager anticipation.

After all, the future of the industry is dependent upon cooperation of all, and to this end the REPORTER is consummated.

The finished-goods department is new to the Textile Exhibition. It will cover an entire floor, and many of the large manufacturers of cotton, woolen, silk fabrics and knit goods will have exhibits. Although this department was not announced until a short time ago, the finished-goods manufacturers and jobbers have responded most enthusiastically. This phase of the exposition will serve to bring together the selling agents and men of all other branches of the industry. To the finished-goods man the exposition will be educational in the extreme, as many hundreds of buyers will attend the show. It is a fact that but few of these buyers of garments have ever been inside a textile mill, and they have but little idea of the processes of manufacture.

The United States Government has shown enthusiasm over the Exposition. The War Department, Navy Department, Department of Agriculture, and the Bureau of Foreign and Domestic Commerce have made arrangements to exhibit. In fact, the United States Government exhibits will cover a greater amount of space than those of any individual exhibitor in the show. It will not only be of interest to everyone in the textile industry, but will be interesting and instructive to the public in general.

The Quartermaster Corps will stage a most complete exhibit of all textiles used in the personal equipment of American soldiers, as well as tenting and woven materials required by the army. Tents actually set up and equipped in military fashion, as for official inspection, with a detail of uniformed men in attendance, will make the exhibit realistic as well as educational. Lay figures completely dressed in regulation uniforms and undergarments, with full equipment, will enable the visiting manufacturer of textiles and the maker of finished clothing to understand the minute requirements of the army.

In addition to the central exhibit, there will be special displays of cotton goods, woolens, manufactured articles, shoes and leather. Qualified representatives will be present to explain government requirements, and it is expected that many manufacturers whose business has been affected by war conditions will find here an opportunity to turn their factories to profitable and necessary government work.

Foreign wearing apparel that the government has spent years in collecting from all parts of the world will be shown by the Bureau of Foreign and Domestic Commerce. Lay figures will be garbed in the apparel of the various nations, and each garment will bear the regulation government tag giving full data concerning the place of manufacture, wholesale and retail price, nature of demand, import duties, and other pertinent information of value to manufacturers desiring to extend their business to foreign lands. The showing of ladies' lingerie—especially the rare and

valuable collection from South America —will be of particular interest.

A complete set of government standards for grade and color of cotton will be shown by the Department of Agriculture,which will also furnish ten reels of motion pictures showing the cotton industry from the planting to the finished goods. Similar movies of the woolen industry will be furnished if available during the show. Several reels showing the activities of the Department of Commerce have also been promised.

Arrangements are under way to secure from the Navy Department a complete exhibit similar to that of the army, and the complete equipment of naval and marine personnel will be shown. Negotiations are also pending with the Signal Corps, which includes the aviation and balloon sections, and those articles of textile interest—such as balloon cloth—which are not of necessity of secret nature, will probably be secured for the show.

Taken in its entirety the exhibition should prove highly educational and unquestionably the dyestuff exhibitors will receive their share of attention.

We hope that you will find the time in which to attend,—that you will be pleased with the exhibit and, most of all, that you will visit the booth of the AMERICAN DYESTUFF REPORTER.

Coal-Tar Products

The market for coal-tar products was particularly quiet this week. Prices on the crudes were somewhat easier due to the more liberal offerings and the light falling off in demand.

Toluol

It is with thankfulness that we report that large quantities of toluol have recently been released by the governmental authorities. The government, however, appears determined not to permit offerings on the open market. There are some dealers that are offering small quantities from time to time but this is of little interest to the actual manufacturers of dyestuffs.

Aniline Oil

There has been quite an active demand this week and a number of second-hand lots have been available at a slight concession in price. The producers of this product seem to be quite firm in the matter of price.

Heavy Chemical

The feature of the market this week has been the recovery of the price in caustic soda. Aside from this movement the market has been rather quiet with the exception of a little activity on the part of some of the smaller dealers.

The Central Dyestuff & Chemical Company, Plum Point Lane, Newark, New Jersey, is having plans prepared for the construction of a new reinforced-concrete addition to its plant. Marshall N. Shoemaker, 810 Broad Street, Newark, is architect.

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Members: American Dyestuff Manufacturers Association, American Dyes Institute.

Dyestuffs for Hat Dyeing

Hats being made of wool or fur, and the fur generally being "carroted" and the wool acid-fulled, introduce other difficulties that are not only dependent on the density of the fabric.

The general rules of wool dyeing require considerable modification in order to insure evenness and penetration. Before the dyeing is commenced the bodies should be well washed in a mild alkali to remove any traces of acid, if any has been used in preparing the felt.

The dye-bath is generally much more concentrated than for other kinds of wool dyeing, there being a much larger amount of Glauber Salt and usually much more dye than is really needed. At the start the bath contains only Glauber Salt and dyestuff and the boiling is continued for an hour or longer until the dye solution has penetrated through to the centre. This makes it necessary to use acid dyes of the best solubility and levelling qualities. Such colors as Avo Blue, Patent Blue, Tanafuchsine SG, Orange II, Resorcin Yellow and others of like qualities were much in favor before the war. For blacks, the Naththol Blacks and Victoria Black were used for some work, particularly on soft felts and shaded with the acid colors previously named. Hard fur felts for derbies were generally dyed with Chrome Blacks, aftertreated.

When the penetration has been effected, acetic acid is added in small portions, and when almost all of the color has been taken up the bath may be exhausted with Sulphuric Acid. Some hat dyers prefer to use Acetate of Ammonia, which on boiling slowly liberates Acetic Acid on the fibre.

There has always been a difficulty in dying small samples as a test because it is very hard to obtain the same penetration as in practical work. When the penetration varies the shade will vary also.

The best rule to follow in offering dyes to hatters is to avoid those which have any tendency toward uneven dyeing or insolubility or exhaust quickly.

United Piece Dye Works Purchased by American Aniline Products Company

The plant of the United Piece Dye Works, formerly known as the Peerless Finishing Works, at Nyack, N. Y., occupying the entire block fronting in Railroad Avenue, Cedar Hill Avenue, Hudson and Florence Streets, about 300 feet from the Erie Ralroad tracks, and not far distant from the Hudson River, has been sold to the American Aniline Products Company, of Manhattan, by Joseph P. Day.

The plant consists of a number of modern buildings, containing 93,045 square feet of manufacturing space. All of the buildings are equipped with sprinkler system, steam heat, electric lights and elevators.

The property was held at $105,000. Rose & Paskus, attorneys, represented the United Piece Dye Works, and B. R. Armour the American Aniline Products Company, which, Mr. Armour states, will begin immediately to manufacture aniline colors for the Government.

Manufactured by
The Butterworth Judson Corp.
WORKS
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Boston, Mass.

VICTORIA BLUE B
VICTORIA BLUE BASE
CRYSTAL VIOLET
CHROME BROWN

Phosgene Gas Michlers Ketone
Dinitrobenzol Benzyl Chloride
Picramic Acid Salicylic Acid
Benzidin Sulphate and Base, Etc.

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LAKE COLORS ANILINE COLORS
PHARMACEUTICALS
OILS AND GREASES
ACIDS

American-Made Dyestuffs and the Hosiery and Underwear Trade

By Dr. Louis Joseph Matos

Reprinted from The Underwear & Hosiery Review

The hosiery and underwear trade, like other branches of the textile industry, was not exempt at the outbreak of the European War from the uncertainties of the dye situation, and considerable anxiety was experienced by those most interested as to how these difficulties were to be met and overcome.

The knit goods industry for many years has made extended use of a great number of dyestuffs, representing almost every chemical group. The most important dyestuff, if such it may be called, is aniline oil, and its derivative, aniline salt, both of which are used in immense quantities for the production of fast blacks upon cotton.

Next in importance are the diazotized and developed blacks, of which many tons were consumed annually, chiefly for stockings.

The Immedial or sulphur blacks were also consumed in very large quantities, and to such an extent, that the sulphur color dyeing industry could be safely regarded as a distinct branch of the trade. Not only were the dyes of this group used for blacks, but tans and other mode shades as well.

The diamine or direct dyeing colors were most extensively employed for tans and the wide range of other standard and mode shades.

Whether due to apprehension, or to a realization that the dyestuff supplies were being conserved in order that the stocks on hand in the mills or believed to have been in the warehouses of the importers, various expedients were resorted to, by dyers for the purpose of making the stocks last as long as possible. It is needless to review the efforts of the importers, their agents, and the technical men, cooperating with the mill men and their dyers; of the experiments that were tried out with strange and unknown dyewares with the hope of producing shades that would meet the requirements of the public.

It is difficult to properly present the thoughts of those who were vitally interested in their endeavors to supply at the time, those dyewares that were seemingly out of reach. After the war had progressed for several months, it became apparent to those most interested that the supply of dyestuffs formerly secured from Germany was becoming gradually less, until that time when all realized that the last consignment had been received and no more could be expected. In the meantime, our chemists were not idle. It became evident that something would have to be done in this country toward making a beginning at least of producing dyestuffs from our own raw materials upon a far larger scale than had heretofore been attempted. This, of itself, was no easy matter for the reason that, while many of the simpler dyestuffs demanded by the mills were of no great difficulty to produce, the Intermediates absolutey essential for their manufacture were extremely complicated and required plants for their fabrication of considerable magnitude. Color chem-

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General Textile Testing

Dyestuff and Color Tests

Microscopic examinations Photomicrographs

ists were not idle. Processes had to be devised, long series of experiments carried out, machinery designed and installed, until a point was reached when it could be said that a beginning had been made.

What saved the day for the hosiery trade in the beginning of the war, was the building of the large plant for the manufacture of aniline oil and aniline salt at Marcus Hook, Pa., now constituting one of the important units of the National Aniline and Chemical Co., Inc. Immediately upon the outbreak of hostilities, the men now prominent in the National Company advanced a half-million dollars with which to commence operations in what is now the most completely equipped aniline plant in existence. It was at this plant where the oil was produced that kept the textile mills going after the supply of imported goods ceased.

The output of aniline was rapidly increased during the first two years of the war, owing to the number of plants erected in different parts of the country to manufacture this product. Aniline is produced from benzol, but the supply of this raw material was by no means as plentiful as it should have been, and this led to the erection of a great number of benzol recovery works operated in conjunction with steel works. It should be remembered that benzol, as a raw material, is employed for other purposes than the manufacture of aniline. The sudden and great expansion of the munitions industry immediately called for apparently unlimited quantities of picric acid, an explosive which is manufactured indirectly from benzol. Certain other industries not related to the dyestuff industry also demanded carbolic acid in large quantities. All these factors materially influenced the supply of benzol for aniline. Happily, the benzol plants now in operation are capable of taking care of our several requirements for this one important item.

Another important raw material is naphthaline. Prior to the war it was largely imported for refining and remelting, to be ultimately sold in the forms of balls as tar camphor. When the over-seas supply was terminated, every possible domestic source of supply was exploited, with the result that we have now liberal quantities of naphthaline for conversion into a number of necessary and valuable dyestuffs intermediates.

It is proper to draw attention to the fact that the great majority of the naphthaline intermediates are chemically of complicated structure, and very difficult to manufacture. It was to the solving of these difficult problems looking to the production of the necessary intermediates that American dye chemists applied themselves. It has been a matter of slow, but steady progress, and the work is still advancing. It should be remembered that at the outbreak of the war, there were very few chemists in this country who were reasonably well acquainted with the manufacturing details as applied to those raw materials most urgently needed. While the chemistry of the processes involved was well understood, the factory problems had to be met and overcome, one by one.

Of particular interest to the hosiery trade is the production of aniline. The National Aniline and Chemical Co., Inc., at its Benzol Works, Marcus Hook, Pa., now has the largest and most completely equipped aniline plant in the world, which is capable of taking care of the requirements of every branch of the trade.

The development of the sulphur color industry in this country, at one time regarded as problematical, is now thoroughly established, and the quality of its output is esteemed by dyers most favorably. There are several establishments now in operation successfully producing sulphur colors, principally blacks, blues, and tans, large quantities of the latter kind of colors being employed for the production of khaki shades for military purposes.

The principal intermediate for the sulphur black industry is chlordinitrobenzol, the manufacture of which in the early days of the industry was regarded as being doubtful, but in due time its successful production was assured, thus

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MYRON DREW REESER, Managing Editor

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Patriotism in the Dye Industry

The manufacture of dyes in this country has more than one objective. It is not only necessary to produce enough colors to keep our mills supplied and incidentally to make money for the dye producer but a foundation must be laid for future achievements and a present defense maintained against pro-German propaganda.

Who has not heard it said repeatedly that we can only go so far in this industry? Who has not heard it contradicted by the vehement reply that we can do anything we set out to do?

Of course we can, but unfortunately we are slow in doing it. Everyone who knows the full details of the development of dyes in Germany and America realizes that with an industry that took many years and much labor and capital to develop, we cannot hope to attain full efficiency in a year or two. On the other hand, there are dyes now made which have been made in this country for some time, and which we have a reasonable right to expect to be almost perfect, that disappoint us.

The consumer, who has every reason to expect uniform deliveries, will say that if he gets two lots from certain sources he is surprised if they agree in shade and strength. This is certainly not due to lack of ability or experience but rather to a policy modeled after the old railroad P. B. D. maxim.

Nothing can be so un-American at this time as carelessness in this direction. There are thousands who are only too eager to point out these shortcomings and use them as shining examples of what we cannot do. A few isolated cases would do little harm but when it reaches so high a figure it is bound to create in the public mind a desire for the return of the old "made in Germany" goods. No patriotic American wants the consumer to yearn for foreign goods. The consumer does not want to be given a rebate without question — he wants uniform American goods.

We have offered a solution and it has been given wide publicity. No American dye manufacturer can truthfully say that he is ignorant of the advantages of general *standardization of dyestuffs*. The subject could not well be misunderstood. It is not urged that any unreasonable restrictions be put on any manufacturer, large or small. It was only hoped that they would aim to follow a standard of their own making. Later, for purposes of the government and scientific interest, these separate standards might be defined and classified, but to-day, for the sake of the consumer and the reputation of America, let us take away from the parasite, that is in our midst, this material on which he feeds—our indifference.

There was a hope this would be accomplished at the time the Dyestuff Association was formed, but many said: "Wait, there are more important matters demanding attention." We are waiting and we are taking note of whatever opposition develops against this subject. We have no power to force the issue, that power lies in the hands of the manufacturers themselves. We can exert the prerogatives of a free press and sound a warning. The consumers expect action and duty to American ideals demands it. Making large profits at this time is not the whole duty of any manufacturer. The entire country is called upon to make its sacrifices for the general good, but a concession of this sort may hardly be called a sacrifice. There is no manufacturer who cannot decide what grade of goods he will be able to deliver in the future—that should be his standard. It is not requiring him to make a sacrifice if he is asked not to deliver sub-standard goods and charge standard prices. We look forward to

the elimination of this type as the industry develops, but feel that it is beneath the dignity of any firm, that intends to stay in the business, to imitate such practices.

We shall take pleasure in reporting from time to time any moves that are made in the right direction toward upholding the good name and high standard of American dyestuffs.

The St. Louis Coke & Chemical Company is planning for the erection of a large new plant, including a by-product coke oven and two blast furnaces, on a site comprising about 300 acres recently acquired, near Granite City, Ill. The property was purchased for a consideration said to be in the neighborhood of $200,000. The new works will engage in the manufacture of toluol, ammonia, naphtha, benzol, metallurgical and domestic coke, gas, etc., and the project is estimated to involve an expenditure of approximately $5,000,000. L. E. Fisher is vice-president and general manager.

INQUIRY DEPARTMENT

Money-Value Test

Question: Please explain the details of a money-value test and how I can have one made by outside parties without disclosing the actual cost of the goods.

Answer: The general principle of a money-value dye test is to have both samples dyed with the same value of dyestuff. Thus if one dye costs $1.00 per pound and another $1.50, we would dye the second one at 1 per cent., or at a cost of $1.50 per 100 pounds of material. The first would be dyed at 1½ per cent., so that the cost of dye for 100 pounds of material would also be $1.50. Then a comparison of the two dyeings would show directly which product gave the best color for the same cost of dyeing. It is not necessary to give the actual cost of the dye. In the case given the cost of the first dye may be stated as 2 and the second as 3 or 20-30, 40-60, 16-24 or any other figures that preserve the same ratio. The dye percentages must be the inverse of the price ratio in every case.

American Dyewood Co.

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Dyewood Extracts

Chipped *and* Ground Dyewoods

Importers of

Aniline Colors *and* Indigo

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Works: CHESTER, PA.

Sulphur Dye Receipts

Question: How can it be determined what is the best dyeing recipe for a Sulphur dye?

Answer: It has been found repeatedly that no amount of laboratory work will give the exact method which is best for a Sulphur dye. The only real guide is a practical dyeing. The quantity of Sodium Sulphide should be such that the dyestuff is entirely dissolved and reduced. Also it should be sufficient to keep the dye dissolved during the greater part of the dyeing operation. As the cotton comes into contact with the air it oxidizes the dye base that is loosely in union with the fibre, the dye becomes fixed and whatever was in the liquor also oxidizes and remains suspended for a time. The excess of Sulphide redissolves and reduces this and is itself converted into sulphate. If the Sodium Sulphide was a polysulphide (as is usually the case) there is a separation of Sulphur. As the separation of Sulphur leads to several bad effects, it is necessary to have sufficient Caustic Soda or Soda Ash to prevent the separation of free Sulphur. These conditions, together with the amount of Common Salt present, must be so adjusted that during the time of dying there will be a maximum of color permanently fixed on the fibre, rather than oxidized in the bath, and that there will not be an excess of sulphide to strip off the dye again. It can be readily seen that these proportions will be greatly influenced by the amount of liquor and the amount of contact with the air. A formula that had been worked out for one dyehouse would not be the best for another. Warps and pieces which are greatly exposed and which have short liquors require more sulphide and less salt. Circulating or vacuum dyeing machines call for less sulphide and less salt, while hosiery dyeing machines work best with a medium amount of sulphide and plenty of salt. No two Sulphur dyes have the same properties in every respect, and even the same dye varies according to the age of the lot. Lots fresh from the factory dissolve easier and need less sulphide while old lots give much trouble in dissolving and often show losses in shade and brilliancy. Some Sulphur dyes leave the dyebath ready for rinsing and drying but others only develop their full shade by being allowed to hang in a damp condition for an hour or so before rinsing. Others require boiling soap to develop the color. An after-treatment with Chrome and Bluestone may be applied to all Sulphur dyes and may be expected to redden and dull the original shade, at the same time to increase the fastness.

Direct Red and Acid Fastness

Question: In order for a Direct Red to be considered fast to acids what strength of acid should it be able to resist?

Answer: It will be necessary in every case to define the name of the acid rather than the strength. If a red is changed instantly by 10 per cent. Sulphuric Acid and shows no change with 2 per cent. Sulphuric Acid, it is only a matter of time. The weaker acid will

DIRECT BROWN G B
DIRECT BLUE B B
DIRECT GREEN B
CONGO RED

ZOBEL

Manufactured by

ZOBEL COLOR WORKS

SALES OFFICE: 38 Water St., New York FACTORY: Brooklyn, N.Y.

also change the color but will take longer to do it. When we use Sulphuric Acid of over 80 per cent. there is likely to be a carbonization of the fibre itself which might be mistaken for a color change. Acetic Acid turns Congo Red to a blue black even in the most dilute solutions but Glacial Acetic Acid, free from water, causes no darkening of the color until it absorbs moisture from the air. Benzo Purpurine, on the other hand, turns brownish and will not become blue with Acetic Acid but requires stronger acids to cause this change. In testing dyes for fastness to acids the question then is what acids it resists and which change the shade. As a rule, all organic acids act alike and all mineral acids, except nitric, act alike. Few, if any, dyes are fast to nitric acid but the changes it produces are of value for purposes of identification. Some dyes change but slightly under an acid test, and others change radically, but so far no rule has been made to define how great a change is permissible before a color is to be considered as not fast.

American-Made Dyestuffs and the Hosiery and Underwear Trade

(*Continued from page 7*)

paving the way for the manufacture of this most important series of dyes.

The National Aniline and Chemical Co., Inc., has concentrated special efforts upon the sulphur color group of dyes, the results being a range of products that enable the dyer to meet every requirement of the dyehouse, as well as the demands of fashion. This important group of dyes includes the following types, comprising the now well-known series of Ammaco colors, and others very closely related, viz.:

Ammaco Sulphur Black WB pdr.

Ammaco Sky Blue.

Ammaco Sulphur Blues D and DR.

Ammaco Sulphur Browns, of various shades and adapted to all purposes.

Ammaco Sulphur Khaki, of various shades. This series is regularly and widely employed for the production of khaki shades under various government contracts.

Ammaco Sulphur Green SAP, an olive green of good properties.

Ammaco Sulphur Yellows, of several desirable shades.

This particular group of dyes represents long continued labors of the research and manufacturing staffs, keeping constantly in mind the various exacting requirements of those branches of the textile industry that depend mainly upon the sulphur colors. The hosiery industry in particular, being a large user of browns, tans, etc., received especial attention.

Supplementing this series of dyes is a small group of closely related products, among which may be mentioned, as being of interest to hosiery dyers, the following:

Sulphur Black F Paste Cone.

Sulphur Black Superior, a product of the very highest concentration, and possessing great depth and brilliancy of shade.

The specialist in sulphur color dyeing has now at his command a line of strictly American products that permits the widest latitude as regards shades,

ATLAS COLOR WORKS
INC.
BROOKLYN, N. Y.

Manufacturers of

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Indigo Paste
Indigo Extract
Alizarine Yellow 3G
Malachite Green

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322 Ninth Street, Brooklyn, N. Y.

WORKS:
Hamilton Ave. and Gowanus Canal
Brooklyn, N. Y.

whether upon woven or knitted fabrics, or upon raw stock cotton intended for knitting or hosiery yarns.

The knit goods trade has always been a large consumer of sulphur colors and when the supply of this line of coloring matters was augmented by quotas of domestic production, an era of relief pervaded the trade. Chemists identified with the sulphur color dye industry in this country are carrying on their labors incessantly, and there is every reason to believe that from time to time, the hosiery trade will be apprised of additions to this important line of dyes.

In the group of direct dyeing colors, there are many whose special field of usefulness is found in the knit goods trade, and the research department of the National Aniline and Chemical Co. has the several problems of their production constantly before it.

The list of American-made direct dyeing colors produced by the National is even more extensive than the sulphur colors. Of first importance is the well-known Erie Black Gx00, a product possessing standard properties, and of wide application wherever a direct black can be used.

Ammaco Direct Blue 3B.
Niagara Blue 2B.
Niagara Blue DB.
Niagara Dark Blue 3R.

These comprise a series of blues that permit the production of a very wide range of shades, and adapted to various conditions of dyeing. The group of direct browns include Direct Brown T, a universal color for tan shades, and which can readily be toned with other of the National's products yielding an attractive range of mode shades on hosiery. Erie Direct Browns C and GR are two well-known types of general application to cotton.

The list of American made dyes of direct interest to the hosiery trade would not be complete without reference to a number of important, though less used colors, that find constant application in the knit goods dyehouse for a variety of purposes. These dyes are: Ammaco Direct Green WB, and Erie Direct Greens MT and WT; Erie Direct Orange 2R; Erie Direct Red 4B Conc; Erie Garnet B; Ammaco Delta Red 2B, and Buffalo Direct Garnet R.

Though a small group, it is comprehensive and of wide utility, not so much for the hosiery trade, but for sweaters and heavier lines. To this group may

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WANTED—Color man for factory. Must have good eye for fine differences and effects and be able to select and apply colors for new results. One of artistic or technical school training preferred. 50 hours a week, two weeks' vacation. State experience and salary wanted. "Stainer," 810 Broad Street, Newark, N. J.

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COLORS

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OIL RED
OIL BROWN
OIL YELLOW
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OIL MAHOGANY

We Can Match Special Colors

SIZING SPECIALTIES CO.
INCORPORATED
JERSEY CITY NEW JERSEY

be added the Ammaco Direct Violets, and Niagara Violet BW; Ammaco Chloramine Yellow WB; Buffalo Direct Yellow KM, and Niagara Fast Black F.

Like many of the dyes in other groups, some of these particular coloring matters are not easy to manufacture, but in due course these difficulties will be overcome, and the dye placed upon the market.

The American textile industry is so extensive, and covers such a wide range of fabrics, each fabric of the industry requiring groups of dyes peculiar to itself, that it seems almost incredible that so much progress has been made in keeping all these various industries going, within such a brief period, and with so little preparation.

New Dyes

We are now authorized to announce to the trade the dyestuffs listed below.

These dyes are manufactured by one of the large companies the name of which is indicated by the name of the products:

Niagara Orange Y

This is a recent addition to our list of direct dyeing colors, but which is of great importance for coloring various cloth as a self-color and in combination shades.

It dyes level, penetrates the fabric well and is to be recommended for its value in jig and pad work.

This dye is identical with its prototype and possesses all the useful properties of the heretofore important product.

Niagara Blue 3 B

This is a new addition to our list of direct dyeing colors. It is especially adapted for dyeing cotton piece goods on account of its level dyeing and penetrating properties, particularly on the jig. It discharges readily by the usual process yielding clear whites.

Niagara Blue 3 B is identical with several well-known brands of direct blues formerly imported, and will be found a useful addition to the list of dyes employed by the cotton dyer.

Superchrome Black

This is a new after-chroming wool black, possessing very good qualities of fastness to fulling, light, potting, acids and alkali, and should, therefore, prove to be of much interest to raw stock, yarn and piece goods dyes, for the production of blacks, or as a shading color in combination with either Chrome Navy Blue, B. N. Extra, and Buffalo Chrome Black B. N., yielding a wide range of fast shades of various tones.

Superchrome Black 6 B. P. is also valuable for the production of shades adopted to the vigoreux process.

Chemicals Used in Bleaching, Dyeing, and Calico Printing

This article appeared in the March issue of "The Textile American," and full credit is given this publication.

Nothing is of greater importance to the chemist, bleacher, dyer, and printer than an accurate knowledge of the varying properties of the numerous chemical agents, thickenings, etc., daily

United Chemical Products Corporation
Importers, Exporters and Manufacturers
YORK AND COLGATE STREETS, JERSEY CITY, N. J.
CHROME AND SULPHUR COLORS
ACID COLORS SUMAC EXTRACT
BASIC COLORS LOGWOOD-HEMATINE
DIRECT COLORS GAMBIER-FUSTIC
CHROMONAL FAST KHAKI CHROMONAL FAST GREEN
Fast to Light, Fulling and Milling
Soluble Oils, Textile Soaps, Gums, etc., for Weighting, Softening, Finishing and Waterproofing all Fabrics
WRITE FOR SAMPLES AND QUOTATIONS

employed in the carrying on of these industries; in fact, the same is absolutely essential to the best results being secured. Some chemicals exist which give unrivalled results but which cannot, owing to their cost, be extensively employed, new chemical agents are constantly making their appearance, and new preparations, also cheap substitutes for some of the costly chemicals just named which succeed admirably in producing the same results. The purpose of this article is to deal with the most important agents utilized to-day in bleaching, dyeing, and calico printing, describing their various properties fully, so that those engaged in the trades may be thoroughly up-to-date in their knowledge of them.

Hydrogen Peroxide, or Peroxide of Hydrogen, is often named in connection with the bleaching of silk as a substitute for stoving in sulphur. It is used as a colorless, aqueous solution, prepared by decomposing barium peroxide, or sometimes sodium peroxide with dilute sulphuric acid. The bleaching property of hydrogen peroxide is based on its property to readily develop oxygen. The strength of the commercial solution is generally expressed in volumes of oxygen evolved by 1 volume of the liquid, the usual strength of 12 volumes corresponding to 3% hydrogen peroxide. Pure hydrogen peroxide of 30% is at times sold under the name of "Perhydrol." Hydrogen peroxide is used for the bleaching of white yarns and fabrics. The product keeps best at a low temperature in the dark, and if acidulated with small quantities of acid. An addition of 1½ ounces napththalene, or 1 pint of alcohol, or ether to 10 gallons of the solution improves its stability. In the presence of alkalis, or on heating, it readily gives off the oxygen it contains, and as certain metals exercise a decomposing action upon hydrogen peroxide it is best to keep it in well-tarred casks, or in carboys.

For determining its strength, 2-4 grams of a sample are mixed with 20 c.c. sulphuric acid (diluted 1:2), and an excess of potassium iodide is added. After standing 5 minutes, the liberated iodine is titrated with thiosulphate, and starch solution. In the absence of other bodies which reduce permanganate the latter may be used very simply for the determination. A measured quantity of the sample is acidulated, and titrated with permanganate until the solution has assumed a permanent faint pink color; in this case oxalic acid is particularly to be considered, which is contained sometimes in the marketable peroxide of hydrogen, and which is recognizable by the property of its solution after neutralizing with ammonia, and again acidulating with acetic acid to yield a white precipitate with calcium chloride. Hydrofluoric acid behaves in a like manner but the precipitate does not reduce permangante.

Sodium Peroxide serves for bleaching in the same way as Hydrogen Peroxide. It is a white deliquescent powder which absorbs carbon dioxide with the evolution of oxygen. It dissolves in water with generation of heat and on boiling develops oxygen. On sufficiently cooling, it dissolves in acidulated water with formation of hydrogen peroxide and the corresponding salt. It is frequently used, therefore, in place of the latter for bleaching. When brought into contact with inflammable substances like paper, etc., it ignites them; therefore, it must be always handled with care. It develops 20 per cent. by weight of oxygen, whereas hydrogen peroxide of 12 per cent. by volume only yields 1½ per cent. by weight of oxygen. In addition, it should be well noted, sodium peroxide possesses the advantage of remaining stable for an indefinite period when properly stored. It is determined in the same manner as peroxide of hydrogen. Owing to its hygroscopical character it must be weighed off rapidly, introduced carefully into dilute sulphuric acid, any development of oxygen being avoided as far as possible, and titrated to best advantage by means of permanganate.

Grape Sugar, or Glucose, is produced, chiefly, by treating starch with acid, and is sold in white, or yellowish lumps, very easily soluble in water. When heated with alkalis, grape sugar

has a strong reducing action, and is for this reason largely employed in dyeing and colico printing. It serves as an assistant for printing immedial colors, and is also used for dyeing the immedial colors on wool, half-wool, or silk in order to protect animal fibre against the detrimental action of sodium sulphide. It is, in addition, employed to add to finishing sizes on account of its property of absorbing moisture.

Diastafor is a product much used of late in place of the ordinary extract of malt to liquify starch in removing the size and for other purposes. It is a thick liquid extract of malt of great purity and strong action. It is easily soluble in lukewarm water of a temperature not exceeding 50° C. (120° F.). Diastafor is applied generally at 40-70° C. (105-160° F.), but acts best at 60-70° C. (140-160° F.). Temperatures above 75° C. (167° F.) and likewise alkalis, destroy the diastase which is the active ferment of the Diastafor and so prevent its dissolving action on starch. The temperature of a liquor, or size on which the Diastafor is wished to act must therefore not exceed 75° C. (167° F.), and, further, they must not contain any alkalis. On the other hand, if the reaction of the Diastafor is to be interrupted, for example, when preparing thickening agents, finishing sizes or dressing, they must be heated rapidly, or alkali must be added. Diastafor serves very well for preparing alkaline starch thickenings.

Acetine is a mixture of the acetic acid ethers of glycerine, and acts very successfully as a solvent for Basic colors in calico printing. On steaming it dissociates into acetic acid and glycerine.

A product which is now used largely for finishing purposes, and in some instances as a thickener with very good results, is Carrageen, or Irish Moss. It is a glue-yielding plant (lichen sea weed), greenish white in color, transparent, conglomerated like horn, which dissolves almost completely in boiling water. Strong decoctions gelatinize. Carrageen is sometimes employed in yarn printing.

Iceland Moss is a lichen forming little hard grayish white, or olive green leaves which swell in water and form a gelatinous mass, and under the denomination of Lennar Gum (Vigoureux Gum), a kind of lichen in form of a yellowish powder is marketed, which is very well suited as a thickener or slubbing printing.

Blood albumen is employed principally as a thickener and answers very well for fixing earth colors, Diamine colors, and at times also Basic colors. To prevent the frothing of the albumen colors, some olive oil, turpentine oil or glycerine is added. The colors are usually printed with a brush furnisher as they are apt to stick in the engravings of the printing rollers. Blood albumen is sold in the form of bright yellow to brown scales, which are soluble in water at a temperature not exceeding 35° C. (95° F.). At about 70° C. (160° F.) it becomes insoluble, and coagulates. When cold, it coagulates by the action of mineral acids, metaphosphoric acid and certain metallic salts. With formaldehyde insoluble albumen compounds are likewise obtained. The lighter sorts of blood albumen are better to employ than the darker ones, particularly when printing light shades. The albumen solution is prepared by pouring 1-2 parts water of 30° C. (85° F.) over about 1 part albumen, allowing the mixture to stand for about 24 hours, and from time to time submerging the albumen swimming on the surface. The solution is then separated by sieving it off from the undissolved residue. To prevent the solutions from putrifying, a little arsenate of soda (1-2 per cent.), glycerine, etc., may be added. Dark colored qualities of blood albumen may be bleached by treating their solutions with turpentine oils.

The unpleasant odor attaching frequently to goods printed with albumen color can be removed by a slight chlorine after the steaming.

Egg albumen is placed on the market in the form of pale yellow scales, and on account of its light color it is in certain instances preferred over blood albumen for delicate shades, notwithstanding its high price.

(*Continued in a later issue*)

At the Textile Exhibition

It is now generally conceded that the appearance of the present National Aniline & Chemical Company, Inc., with its several plants covering the manufacture of dyestuffs from bases through intermediates to the finished color, marked the fixation of dyestuff manufacture here in America. At the Sixth National Textile Exhibition, which is to be held at the Grand Central Palace, New York, from April 29th to May 11th, 1918, this company will occupy a large corner space on the Fourth Floor. Here will be shown some of the achievements that have marked the progress of the art during the past year. A feature of the exhibition will be a display of dyeings of some fifty "NATIONAL" colors, along side of which will be shown dyeings of the same class of colors of German manufacture. These dyeings of

American Colors *versus* German Colors

will be subjected to the same tests of scouring, fulling, and exposure to light and weather, with the purpose of illustrating more fully than has heretofore been attempted the exact status of American dyes as compared with similar dyes of foreign manufacture. We invite from the textile trade, as well as from the public, a most careful scrutiny of this exhibit. If it be examined with a knowledge of the work of our Research Department the well-informed will at once recognize that the promises of this company are gradually being fulfilled, and that "NATIONAL" colors within a reasonable time will form an adequate and comprehensive line.

National Aniline & Chemical Company

INCORPORATED

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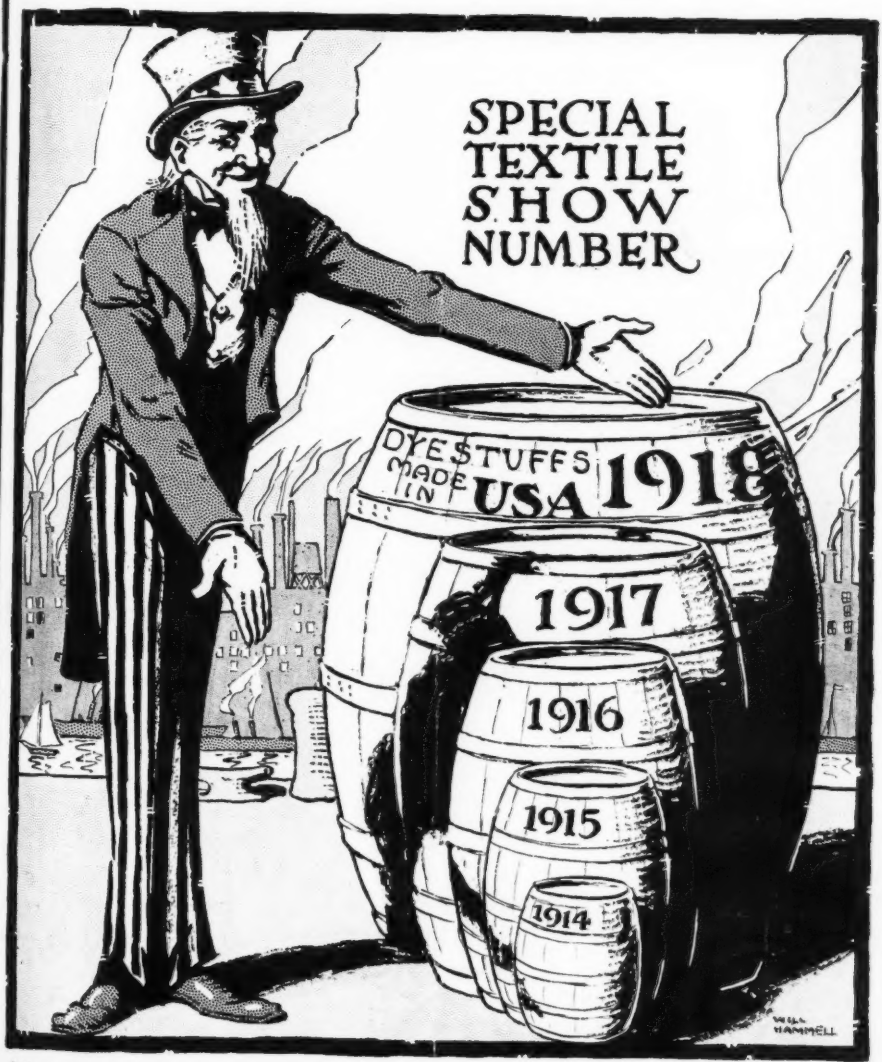

APRIL 29 1918

DU PONT DYESTUFFS

AT THE TEXTILE EXHIBITION

We will be pleased to receive our friends in the textile industry at our booths, opposite the Government exhibits on the third floor, at the Sixth National Textile Exposition, Grand Central Palace, New York City, April 29 — May 11, 1918.

E. I. du Pont de Nemours & Co.

Dyestuff Sales Department

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The Du Pont American Industries are:

E. I. du Pont de Nemours & Co., Wilmington, Delaware, Explosives

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The Arlington Works, 725 Broadway, N. Y., Ivory Py-ra-lin and Challenge Collars.

Harrison Works, Philadelphia, Pa., Paints, Pigments, Acids and Chemicals

Du Pont Dye Works, Wilmington, Delaware, Dyes and Dye Bases